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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LEUNG, CHRISTINA Y

ART UNIT	PAPER NUMBER
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2633

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/931,111		IMAJO, YOSHIHIRO	
	<b>Examiner</b>		<b>Art Unit</b>	
	Christina Y. Leung		2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 August 2001.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11 and 13-16 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/386,297.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

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## DETAILED ACTION

### *Priority*

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/386297, filed on 31 August 1999.

### *Claim Objections*

2. Claim 12 is objected to because of the following informalities:

Claim 12 recites "a electric signal multiplexer" in line 9 of the claim. Examiner respectfully suggests the phrase should be changed to "an electric signal multiplexer" for grammatical reasons.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 11, 13, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishikawa (US 5,936,753 A).

Regarding claim 11, Ishikawa discloses an optical transmission system (Figure 1) comprising:

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a main unit (comprising main system 100 and branching unit 300) which inputs a first electric signal (into E/O unit 20) and outputs a plurality of first optical signals (output from coupler 30), and inputs a second optical signal (received by coupler 30) and outputs a second electric signal (from receiver 24);

a plurality of sub units 200-1...N, each of which inputs one of the plurality of first optical signals from the main unit and outputs a third electric signal (using receiver 40), and inputs a fourth electric signal and provides the second optical signal to the main unit (using O/E unit 38);  
and

a plurality of optical fibers 36-1...N, each of which connects the main unit and the plurality of sub units;

wherein the main unit has:

an electro-optical converter 20 which inputs the first electric signal and converts the first electric signal to a first optical signal;

a first optical coupler 30 which divides the first optical signal into a plurality of first optical signals;

a plurality of input/output ports 34-1...N, each of which outputs one of the plurality of first optical signals divided by the first optical coupled to one of the sub units through one of the optical fibers 36-1...N and inputs the second optical signal from one of the sub units through one of the optical fibers;

an output port which outputs the second optical signal (the output port from WDM 28 which sends the second optical signal to sender/receiver 24);

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a second optical coupler (WDM 28), provided between the electro-optical converter 20 and the first optical coupler 30, which provides the first optical signal to the input/output ports and the second optical signal to the output port;

an opto-electric converter (sender/receiver 24) which converts the second optical signal output from the output port to a second electric signal; and

an electric signal output terminal which outputs the second electric signal (the output terminal from sender/receiver 24, which provides the electrical signal output).

Regarding claim 13, Ishikawa further discloses (Figure 1) that the second optical coupler 28 is provided between the electro-optical converter 20 and the first optical coupler 30;

the first optical coupler 30 further multiplexes a plurality of the second optical signals and provides the second optical signal to the second optical coupler (via line 26 between the first and second couplers); and

the second optical coupler 28 provides the first optical signal input from the electro-optical converter 20 to the first optical coupler 30 and provides the second optical signal multiplexed by the first optical coupler 30 to the output port (the output port from WDM 28 which sends the second optical signal to sender/receiver 24).

Regarding claim 14, Ishikawa discloses that the second optical coupler 30 is a wavelength division multiplex optical coupler that selects an optical signal, a wavelength of which has a prescribed relationship with a wavelength of the second optical coupler and outputs the selected optical signal to the output port.

5. Claims 11, 13, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Fussganger (US 5,202,780 A).

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Regarding claim 11, Fussganger discloses an optical transmission system (Figure 1) comprising:

a main unit (comprising center 10 and remote distribution unit 20) which inputs a first electric signal (from cable TV head station 11) and outputs a plurality of first optical signals (from coupler 22 and multiplexer/demultiplexer 25), and inputs a second optical signal and outputs a second electric signal (to local switching center 12);

a plurality of sub units Tln-1...8, each of which inputs one of the plurality of first optical signals from the main unit and outputs a third electric signal (from receiver UK or UA), and inputs a fourth electric signal and provides the second optical signal to the main unit (from transmitter UB); and

a plurality of optical fibers, each of which connects the main unit and the plurality of sub units;

wherein the main unit has:

an electro-optical converter 11 which inputs the first electric signal and converts the first electric signal to a first optical signal;

a first optical coupler (multiplexer/demultiplexer 25) which divides the first optical signal into a plurality of first optical signals;

a plurality of input/output ports (ports of multiplexer/demultiplexer 25), each of which outputs one of the plurality of first optical signals divided by the first optical coupled to one of the sub units through one of the optical fibers and inputs the second optical signal from one of the sub units through one of the optical fibers;

an output port which outputs the second optical signal (output ports from multiplexer/demultiplexer 13, for example, which provide the second optical signal to the local switching center 12);

a second optical coupler 15, provided between the electro-optical converter and the first optical coupler, which provides the first optical signal to the input/output ports and the second optical signal to the output port;

an opto-electric converter (located within local switching center 12) which converts the second optical signal output from the output port to a second electric signal; and

an electric signal output terminal (part of local switching center 12) which outputs the second electric signal.

Regarding claim 13, Fussganger discloses that the second optical coupler 15 is provided between the electro-optical converter 11 and the first optical coupler (multiplexer/demultiplexer 25);

the first optical coupler 25 further multiplexes a plurality of the second optical signals and provided the second optical signal to the second optical coupler; and

the second optical coupler 15 provides the first optical signal input from the electro-optical converter to the first optical coupler and provides the second optical signal multiplexed by the first optical coupler to the output port.

Regarding claim 14, Fussganger discloses that the second optical coupler 15 is a wavelength division multiplex optical coupler that selects an optical signal, a wavelength of which has a prescribed relationship with a wavelength of the second optical coupler and outputs the selected optical signal to the output port.

*Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa.

Regarding claims 15 and 16, Ishikawa discloses a system as discussed above with regard to claim 11.

Regarding claim 15, Ishikawa further discloses that the sub unit 200-1...N has:

a sub unit input/output terminal which inputs the first optical signal from the main unit through the optical fiber (Figure 1 shows a terminal which inputs from or outputs to lines 36);

an opto-electric converter (O/E unit 38) which inputs the first optical signal and converts the first optical signal to the third electric signal;

an electro-optical converter (sender/receiver 40) which converts the fourth electric signal to the second optical signal; and

a wavelength division multiplex optical coupler 42 which provides the first optical signal to the opto-electric converter and the second optical signal to the sub unit input/output terminal.

Ishikawa discloses that electrical signals are input to and output from the sub units 200-1...N but does not specifically disclose an antenna. However, it is well known in the art that antennas or wires may be used to communicate electrical signals. It would have been obvious to a person of ordinary skill in the art to provide an antenna in the system disclosed by Ishikawa as



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an engineering design choice of a way to further transmit the electrical signals to and from the electrical domain in the system.

Regarding claim 16, Ishikawa discloses input/output ports, an output port, and optical fibers but does not specifically disclose optical connector adapter that detachably mounts an optical fiber. However, it is well known in the art to use an optical connector adapter for properly mounting optical fibers to the ports of various optical communication elements, and it is also well known to use connectors that detachably mount optical fiber in order to provide more versatility in the system in the event of repairs or upgrades. It would have been obvious to a person of ordinary skill in the art to specifically provide optical connector adapters in the system disclosed by Ishikawa in order to properly secure the fibers already disclosed to the optical elements also already disclosed.

8. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fussganger

Regarding claims 15 and 16, Fussganger discloses a system as discussed above with regard to claim 11.

Regarding claim 15, Fussganger further discloses that the sub unit TIn-1...8 may further comprise (see Figure 3, which shows an alternative embodiment of the sub units)

a sub unit input/output terminal which inputs the first optical signal from the main unit through the optical fiber (Figure 3 shows a terminal which inputs from or outputs from the sub units);

an opto-electric converter (receivers UK or UA) which inputs the first optical signal and converts the first optical signal to the third electric signal;

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an electro-optical converter (transmitter UB) which converts the fourth electric signal to the second optical signal; and

a wavelength division multiplex optical coupler MB which provides the first optical signal to the opto-electric converter and the second optical signal to the sub unit input/output terminal.

Fussganger discloses that electrical signals are input to and output from the sub units but does not specifically disclose an antenna. However, it is well known in the art that antennas or wires may be used to communicate electrical signals. It would have been obvious to a person of ordinary skill in the art to provide an antenna in the system disclosed by Fussganger as an engineering design choice of a way to further transmit the electrical signals to and from the electrical domain in the system.

Regarding claim 16, Fussganger discloses input/output ports, an output port, and optical fibers but does not specifically disclose optical connector adapter that detachably mounts an optical fiber. However, it is well known in the art to use an optical connector adapter for properly mounting optical fibers to the ports of various optical communication elements, and it is also well known to use connectors that detachably mount optical fiber in order to provide more versatility in the system in the event of repairs or upgrades. It would have been obvious to a person of ordinary skill in the art to specifically provide optical connector adapters in the system disclosed by Fussganger in order to properly secure the fibers already disclosed to the optical elements also already disclosed.

*Allowable Subject Matter*

9. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

Although Ishikawa and Fussganger each generally disclose a system as discussed above with regard to claim 11, neither specifically discloses or suggests a system including all the elements recited in claim 12 in combination with the elements recited in claim 11 on which it depends. Fussganger also discloses a plurality of the output ports (from element 13), which provide a plurality of second optical signals to a plurality of opto-electric converters in local switching center 12, but Fussganger does not further disclose or suggest the particular arrangement recited in claim 12 including a plurality of second optical couplers, each of which is provided between the first optical coupler and one of the input/output ports, and an electric signal multiplexer with features as recited in claim 12.


*Conclusion*

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Y. Leung whose telephone number is 703-605-1186. The examiner can normally be reached on Monday to Friday, 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703-305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.



JASON CHAN  
SUPERVISORY PATENT EXAMINER  
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